

Fayetteville Master Path Plan

PRIORITIZATION FRAMEWORK REPORT

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1. Introduction

This project prioritization framework establishes the structure and methods for use in prioritizing project recommendations associated with the Fayetteville Master Path Plan. Prioritization is a key element of comprehensive transportation planning due to the wide range of needs evaluated throughout the process and the large costs associated with infrastructure investment. Prioritization allows policy makers to target their limited resources at the most critical problems.

This prioritization framework relies on a range of quantitative and qualitative variables and a weighting system to generate prioritization scores for individual projects. These scores are comparable only within project categories and/or modes.

While this prioritization framework provides a strong foundation from which to make investment decisions, it does not replace the need for leadership and planning judgement calls. It should be used in conjunction with public feedback, awareness of limited resources, and broad policy objectives to guide transportation investment decisions.

2. Prioritization Framework Structure

This prioritization framework relies on a range of variables chosen to approximate need and generate prioritization scores that can be used to rank projects according to this need. These variables are derived from standardized regional data sources, including the Atlanta Regional Commission (ARC) Travel Demand Model (TDM), ARC's population and employment projections, the Georgia Department of Transportation's Average Annual Daily Traffic (AADT) count stations, and other accepted regional planning sources.

Due to the nature of population, employment, and travel demand projections, the needs reflected by these values are subject to change over time. Projections are based off of historical trends and known future developments, and they will always be unable to fully account for unknown future events.

2.1. Project Categories

The prioritization framework uses different sets of variables for different mode and project types. This allows prioritization to be tailored according to the characteristics of various projects. Scores generated for each project type can be used to rank similar projects against one another; however, they cannot effectively be used to rank across modes and project types. The project categories established for this framework are as follows:

- **Pedestrian Projects** - These projects include new or enhanced sidewalks and pedestrian crossing improvements.
- **Bicycle Projects** – These projects include bicycle lanes, cycle tracks, enhanced signage and shoulder improvements.
- **Path Projects** - These projects include dedicated, off-roadway multi-use trails designed for pedestrian, bicycle and golf cart use. They are intended for both transportation and recreational purposes.

2.2. Weighted Prioritization Scoring

The project categories listed above are assigned scores based on their values across a range of quantitative and qualitative variables. The variables and associated scores for each project category are detailed in Section 3 of this report.

Scores of 1, 5, or 10 are assigned for each variable based on cutoffs derived from overall data distribution. The scores for all variables associated with a project are then given a weighted average, generating a final prioritization score between 1 and 10, with 10 indicating the highest priority, and 1 indicating the lowest priority.

3. Prioritization Variable Definitions

This section defines the variables used for prioritization and the cutoffs used to assign values of 1, 5, or 10 for each project.

3.1. 2017 Population Density

Population density is measured in persons per acre. Improvements located in denser areas are more likely to affect a larger number of people, thereby having a greater impact on the community. Population density can also indicate where a large amount of growth or activity takes place, making the area a priority for effective transportation access and mobility.

2017 population density for this analysis was derived from ARC's travel demand model projections. This source was used instead of US Census estimates in order to use a consistent data source across multiple analysis variables, thereby preserving the comparable nature of final prioritization scores. The table below displays prioritization scores for 2017 population density values.

Table 1: 2017 Population Density Scores

Persons per Acre	Prioritization Score
<0.5	1
0.5 – 2.0	5
>2.0	10

3.2. Population Percent Growth, 2017-2040

Population percent growth measures the relative change in population for a given area. Areas with higher growth percentages are centers of development and should be prioritized for improvement. This metric allows future as well as current population centers to be prioritized for transportation enhancements.

ARC's 2017 and 2040 population projections were used to generate percent growth values used in this analysis. The table below displays the prioritization scores assigned to different percent growth values.

Table 2: Percent Growth 2017 - 2040 Scores

Percent Growth, 2017 - 2040	Prioritization Score
<57%	1
57% - 108%	5
>108%	10

3.3 Active Transportation Score

This variable incorporates a wide range of variables to determine the demand for walking and other active transportation modes in a given area and ranges in value from 1 to 10, with 10 indicating the most demand.

The table below shows active transportation scores for this analysis.

Table 3.3: Active Transportation Prioritization Scores

Active Transportation Score	Prioritization Score
<5	1
5 - 7	5
8 - 10	10

3.4 Bicycle Comfort Index

This variable is taken from the Bicycle Comfort Index. It incorporates traffic speed and volume variables to determine the relative comfort of cyclists. This is used to determine the need and type of bicycle facilities that are appropriate in a specific area.

The table below shows active transportation scores for this analysis.

Table 3.4: Bicycle Comfort Index

Bicycle Comfort Index Score	Prioritization Score
<3	1
3 - 5	5
6	10

3.5 ARC Bicycle and Pedestrian Safety Risk

The ARC has recently completed an assessment of bicycle and pedestrian safety risks along roadways throughout the region. This study identified areas with higher risks for pedestrian and bicyclists based

upon roadway characteristics. These factors include number of lanes, posted speed limits, lighting and the presence of crosswalks. A score was calculated based upon these risk factors for pedestrian and bicycle risk. More information on this scoring methodology can be found in the report document (*Atlanta Regional Commission, "Safe Streets for Walking & Bicycling: A regional action plan for reducing traffic fatalities in metropolitan Atlanta" (2018). Retrieved from: <https://atlantaregional.org/transportation-mobility/bike-ped/bicycle-pedestrian/>*) High risk areas should be prioritized for pedestrian and bicycle improvements to improve safety along these roadways.

The table below shows the prioritization scores associated with the risk scores from this analysis.

Table 3.5: Bicycle and Pedestrian Safety Risk Scores

Safety Risk Score	Prioritization Score
<5	1
5 - 7	5
8 - 12	10

3.6 Public Input

Public input is a qualitative variable that incorporates the tone of public comments taken from a variety of sources. These include public meetings, phone surveys, online surveys, stakeholder meetings, and comments from a technical advisory committee. Projects which are endorsed or opposed by the community should have their priority adjusted accordingly.

The table below displays prioritization scores for the public input variable.

Table 3.6: Public Input Scores

Public Input	Prioritization Score
Opposed	1
Neutral	5
Endorsed	10

4. Prioritization Variables by Project Category

Each project category is prioritized with a different set of variables and associated weights. While many variables, such as 2017 Population Density are used across multiple project categories, scores across categories are not directly comparable.

The following tables display the variables used to prioritize each project category and their associated weights. All project categories rely on the variables discussed in Section 3.

4.1 Pedestrian Improvements

The variables used to prioritize pedestrian improvements and their weights in the final prioritization score are displayed in the table below.

Table 4.6: Bicycle and Pedestrian Improvement Variables

Attribute	Weight
Active Transportation Score	0.25
2017 Population Density	0.25
Percent Growth	0.25
Public Input	0.25
ARC Pedestrian Safety Score	0.25

4.2 Multi-Use Trails

The variables used to prioritize multi-use trail projects and their weights in the final prioritization score are displayed in the table below.

Table 4.7: Multi-Use Trail Project Variables

Attribute	Weight
Bicycle Comfort Index	0.2
Walking Propensity Score	0.2
2017 Population Density	0.2
Public Input	0.2

ARC Bike Safety Risk	0.2
ARC Ped Safety Risk	0.2